II. AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior listings of claims in the application:

1-49. (Cancelled)

50. (Original) A system for processing a light signal comprising:

conversion means for receiving ultraviolet or visible light and directionally transferring light energy of said light and

processing means for receiving and processing said directionally transferred light energy.

51. (Previously Presented) The system of claim 50, wherein said processing means comprises an optical fiber operative to transmit said light signal energy.

52. (Original) The system of claim 50, wherein said processing means comprises a photosensor.

53. (Currently Amended) The system of claim 50, wherein said ~~directionally transferred light energy~~ conversion means comprises a photon conversion means ~~comprises~~ comprising a supramolecular light-absorbing structure.

54-58. (Cancelled)

59. (Previously Presented) The system of claim 50, wherein said processing means comprises a waveguide.

60. (Previously Presented) The system of claim 50, wherein said processing means comprises an optoelectronic device.

61. (Currently Amended) A system for processing electromagnetic radiation comprising:

conversion means for receiving electromagnetic radiation and converting said electromagnetic radiation into light energy having a desired property~~, wherein said conversion means includes a structure comprising a phycobilisome~~; and

processing means for receiving and processing said light energy.

62. (Previously Presented) The system of claim 61, wherein said processing means comprises a phycobilisome.

63. (Previously Presented) The system of claim 61, wherein said processing means comprises an optical fiber.

64. (Previously Presented) The system of claim 61, wherein said processing means comprises a waveguide.

65. (Previously Presented) The system of claim 61, wherein said processing means comprises an optoelectronic device.

66. (Previously Presented) The system of claim 61, wherein said processing means comprises a photosensor.

67. (Previously Presented) An environmentally responsive sensor comprising the system of claim 61.

68. (Previously Presented) The system of claim 61, wherein said electromagnetic radiation comprises ultraviolet or visible light.

69. (Previously Presented) The system of claim 68, wherein said light energy is red-shifted relative to the received electromagnetic radiation.

70. (Previously Presented) The system of claim 61, further comprising a transducer.

71-74. (Cancelled)

75. (New) The system of claim 61, wherein the conversion means includes a structure comprising a phycobilisome, the phycobilisome comprising two or more phycobiliproteins.

76. (New) The system of claim 75, wherein the two or more phycobiliproteins are coupled by one or more linker polypeptides.

77. (New) The system of claim 76, wherein the two or more phycobiliproteins are in a particular orientation based on the one or more linker polypeptides.

78. (New) The system of claim 76, wherein the particular orientation facilitates energy transfer between at least two of the two or more phycobiliproteins.

79. (New) The system of claim 50 for processing a light signal comprising:

at least one phycobilisome for receiving ultraviolet or visible light and directionally transferring light energy of said light, wherein the at least one phycobilisome comprises at least one of:

an isolated, soluble, stabilized phycobilisome;

a phycobilisome conjugated to a molecular species selected from the group consisting of ligands, receptors, and signal-generating molecules; and

a phycobilisome immobilized on a manufactured solid support; and

processing means for receiving and processing said directionally transferred light energy.

80. (New) The system of claim 79, wherein the processing means comprises an electronic transducer.

81. (New) The system of claim 80, wherein the electronic transducer comprises an optoelectronic transducer.

82. (New) The system of claim 79, wherein the at least one phycobilisome comprises at least one isolated, soluble, stabilized phycobilisome.

83. (New) The system of claim 79, wherein the at least one phycobilisome comprises at least one phycobilisome conjugated to a molecular species selected from the group consisting of ligands, receptors, and signal-generating molecules.

84. (New) The system of claim 79, wherein the at least one phycobilisome comprises at least one phycobilisome immobilized on a manufactured solid support.

85. (New) The system of claim 50, wherein the system comprises a photovoltaic cell.

86. (New) The system of claim 50, wherein the processing means comprises a photovoltaic cell.

87. (New) The system of claim 50, wherein the conversion means comprises phycobiliproteins specifically connected by linker polypeptides.